

WHAT IS CLAIMED IS:

1. An I/V converter circuit comprising:
 - a current mirror circuit including:
 - a first element connected to the ground and a first node to which a current is supplied from an input terminal, and
 - a second element connected to the ground and a second node to which the current supplied to the first node is mirrored;
 - a first bias-current generating circuit which supplies a first bias current to the first node and which adjusts the amount of the current supplied to the first node;
 - a first control circuit which receives the voltage of the first node and a bias voltage at the input side and which controls the first and second elements of the current mirror circuit so that the voltage of the first node is substantially equal to the bias voltage;
 - a second bias-current generating circuit which supplies a second bias current to the second node and which adjusts the amount of the current supplied to the second node;
 - a third element which is connected between the second node and an output terminal and which converts a current flowing therethrough to a voltage by using the bias voltage as a reference voltage; and
 - a second control circuit which receives the voltage of the second node and the bias voltage at the input side and which controls the voltage output from the output terminal so that the voltage of the second node is substantially equal to the bias voltage.
2. The I/V converter circuit according to Claim 1, wherein the second bias current is m times larger than the first bias current, and a current flowing through the second element of the current mirror circuit is m times larger than a current flowing through the first element.
3. The I/V converter circuit according to Claim 1, wherein the first and second elements of the current mirror circuit are N-type MOS transistors, the third element is a resistor, and the first and second control circuits are operational amplifiers.
4. The I/V converter circuit according to Claim 1, further comprising a controller that changes the bias voltage at the input site of the first control circuit.
5. An I/V converter circuit comprising:
 - a first circuit that adds a current supplied from an input terminal and a first bias current for adjusting the amount of the current and for mirroring the added current;
 - a second circuit that adjusts the amount of the mirrored current by a second bias current; and

a controller that biases a predetermined voltage to a voltage obtained by I/V converting the current adjusted by the second bias current and for outputting the obtained voltage.

6. A D/A converter comprising:

a current generating circuit for generating a total current corresponding to the value of a digital signal which is to be converted to an analog signal; and

the I/V converter circuit according to Claim 1,

wherein the total current generated by the current generating circuit is supplied from the input terminal of the I/V converter circuit to the first node.